Operation manual for BJ-272D

Vehicle-mounted

June 2013

Friendly Reminder：

AS purchasing and using this device is related to the setup and usage of a radio station, you are required to go through the procedures for the approval of radio station setup and obtain a radio station license pursuant to the laws. the usage of this device shall comply with the items as approved in the license. Administrative penalty shall be imposed by the radio administrative authority on any act of violating the radio administration regulations, such as setting up and using of radio station without authorization, interfering radio service, failure in operating under the items as approved in the radio station license, ect. Serious breach of radio administration regulations may also violate the Article 288 of the Criminal Law or Article 28 of Public Security Administration Punishment Law, and will be sentenced to imprisonment for a term not more than three years, criminal detention or public surveillance, criminal punishment concurrently or independently be imposed with a fine, or an administrative penalty of detention imposed by the public security organ.

Acknowledgement

Thank you for purchasing this transceiver, we have been dedicated to providing novel and fine radio products. This transceiver is no exception. We are confident that this products will satisfy your requirements for both voice and date communication.

Acknowledgement

warning

- Explosive atmosphere (gas, dust, smog, ect.)
  Please turn off the transceiver while refueling or when your vehicle stops at a gas station if your transceiver is installed in the trunk, please do not place the reserve fuel tank in the trunk.
- Damage from radio signal transmission
  When there is any person around the antenna fittings or touching the antenna, please do not operate your transceiver so as to avoid possible damager or human body injury due to radio frequency.
- Gunpowder and detonator
  The operation of the transceiver within 150m (500ft) to gunpowder and detonator may lead to explosion. In areas of explosion or areas marked with "Turn off dual-way radio", please turn off your transceiver. If your vehicle is used to transport gunpowder and detonator, be sure they are placed in a black sealed metal box with internal packing layer,. Do not transmit signals when you put the gunpowder and detonator into the metal box or take them out of the box.

Precautions

Please observe the following precautions to prevent fire, personal injury and /or driving damage:

- Do not attempt configure the transceiver while driving; it is extremely dangerous.
- Do not transmit with high output for extended periods. Otherwise, the transceiver may become overheated and its service life may be shortened.
- Do not dismantle or retrofit the transceiver for any reason, unless otherwise specified in this manual or other manuals of this company.
- Do not expose the transceiver to blazing sun for any reason, unless otherwise specified in this manual or this company.
- Do not expose the transceiver to blazing sun for a long time .Do not put it in a place close to heating appliances.
- Do not place the transceiver in excessively dusty, humid or wet areas, or on unstable surfaces.
- If any abnormal odor or smoke is detected coming from the transceiver, immediately turn off the power and contact the local distributer.
- Using a transceiver in driving may violate traffic laws. Please inquire or consult the local transportation administration body about the details and observe the local traffic laws.
- Do not use options not designated bu this company.

- All the artificial damage such as access not appropriate , using inappropriate accessories, deprived of manual use: For transportation and other accident causing damage . our company will not free maintenance . We Provide one year warranty for this item.

attention

- The transceiver is designed for a 13.8V DC power source. Do not use 24V batteries. Prior to installing it on the vehicle, please inspect the battery polarity and voltage of the vehicle.
- Only use the DC power cable supplied or selectively purchased by this company.
- The transceiver is provided with the function of transmission prohibition at super-voltage (higher than 14.8V) or low-voltage (lower than 9.8V).

Warning

- Do not cut down or remove the fuse holder of the DC wire. Wrong connection may lead to fume and fire .
- To ensure passenger's safety, please use the supplied mounting bracket and screw set for installation of the transceiver and be sure that it will not slip out in case of vehicle collision
- Lack of proper protection or isolation of various electronic devices in the vehicle from radio RF energy during the transmission of the transceiver may lead to their damage. For example, electronic fuel injector , anti-slide brake and navigation control system are easy to be damaged. if your vehicle is equipped with such devices, please consult the vehicle distributor on whether it is necessary to protect them in transmission.

Table of Contents

Preparations

Standard Accessories

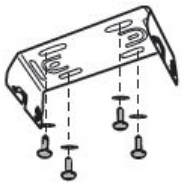
Accessories	quantity
Handheld MIC	1
Holder for handheld MIC	1
DC power cable	1
Mounting bracket	1
Screw set	1
Fuse	1
Operation manual	1

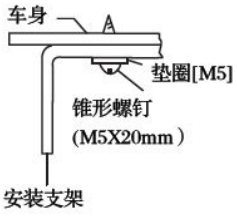
Buy programming cable separately, download the software from company's web site: http://www.qzbaojie.com/

Installation of Transceiver

Select a safe and convenient site in your vehicle so as to reduce possible damage to your passenger or yourself during vehicle movement. You may install the transceiver blow the dashboard in front of the front passenger seats so that your knees and legs will not collide the transceiver in case of emergency brake. It's best to select a well ventilated location which is shielded from direct sunlight.

1. Use the supplied self-tapping screws (4X) and flat washers (4X) to install the mounting bracket in the vehicle as shown in Fig. 1 and Fig. 2.





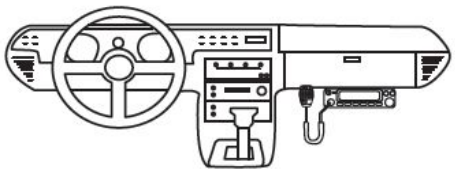
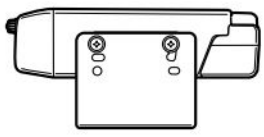
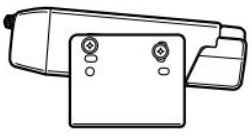


Fig. 1 Fig. 2 Fig. 3

2. Fix the transceiver, and then insert and tighten the supplied hexagonal screws (4X) as shown in Fig. 3.

- Make sure all screws are tightened to avoid loosening of the bracket or the transceiver in vibration of vehicle.
- Use the 3 screw grooves at the side rear side of each bracket to install the main body at a proper inclined angle as shown in Fig., 4, 5 and 6.





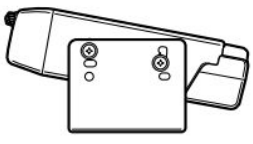


Fig. 4 Fig. 5 Fig. 6

■ Power Cable Connection

■ Operation of transceiver

Be sure to use 12V vehicle batteries with sufficient electricity. If the electricity is insufficient, the display screen may darken or the transmission output power may greatly drop during the transmission. Do not connect the transceiver to 24V batteries.

Note: If you use the transceiver when the vehicle-use batteries are not sufficiently charged or the engine is off, battery discharge may lead to insufficient electricity quantity, making it difficult to start the vehicle. Therefore, try to avoid using the transceiver in such situation.

1、 Use the DC power cable supplied with the transceiver to connect the transceiver with the vehicle battery terminal in a shortest route.

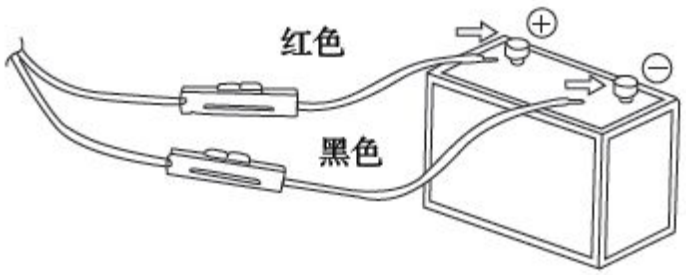
- It is suggested not to use a cigar lighter outlet as much as possible as some of them may lead to great voltage drop.
- The whole power cable must be wrapped up to isolate it from heat and moisture and from the engine ignition system/connection wiring.

2、 When the power cable is installed in place, wind the fuse holder with heat-resistant adhesive tape to protect it against moisture. It's better to use heat-resistant adhesive tape to wrap the whole power cable.

3、 To prevent short-circuit, disconnect the other connection wirings at the negative (-) battery terminal before connecting the transceiver.

4、 Please confirm the correct polarity of connections before attaching the power cable to the battery terminal. Connect the red wire to the positive (+) terminal of battery and the black to the negative (-).

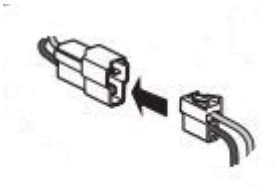
- Use the full length of power cable without cutting off the excess even if it is longer than needed. Remember not to remove the fuse holder from the cable.



5、 Reconnect all connection wirings removed from the negative terminal previously.

6、 Connect the DC power cable to the transceiver.

- Plug in the outlet and keep pushing firmly until the locking tab clicks.



■ Operation of fixed radio station

If you intend to use the transceiver as a fixed radio station, you need to buy an independent 13.8 DC power supply separately with a suggested continuous current capacity of above 12A.

Note:

- Do not connect this DC power supply to the AC power outlet before all connections are completed. (Do not connect the transceiver when it's powered on.)
- Please connect all cables before inserting the DC power supply device into the AC outlet.

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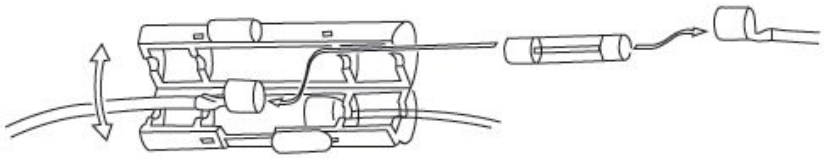
1. Be sure the transceiver and the DC power supply are off.
2. Connect the DC power supply cable to the DC stabilized power supply and make sure the polarities are correct (red: positive, black: negative).
   - Do not directly connect the transceiver to the AC outlet.
   - Use the supplied DC power cable to connect the transceiver to a DC stabilized power supply.
   - Do not use a power cable with the specification and parameters lower than the original power cable.
3. Connect the DC power cable to the transceiver.
   - ◆ Plug in the outlet and keep pushing firmly until the locking tab clicks.

Fuse replacement

If the fuse is blown, please find out the cause and fix it. After that, replace the fuse. If the new fuse continues to blow, disconnect the power cable and contact the authorized distributor for help.



Location of fuse	Rated current of fuse
transceiver	15A
Supplied DC power cable	20A

Attention

Only use fuses of specified type and rated value. Otherwise, the transceiver may be damaged at your own risk.

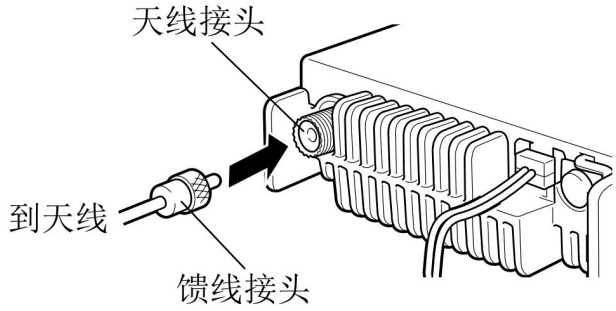
Connecting Antennas

Before operation, install a highly efficient and well-tuned antenna. Successful installation depends largely on the correct antenna type and installation. If a proper antenna system is selected and installed correctly, the transceiver will achieve best performance.

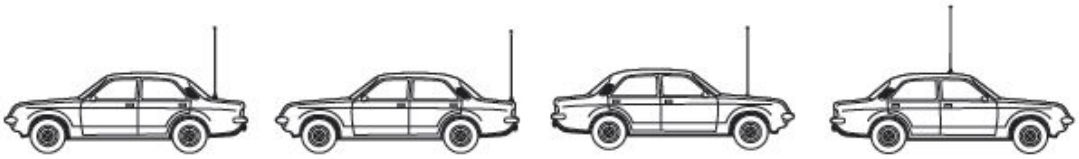
Use an antenna with a characteristic impedance of 50Ω and a low loss coaxial feeder with 50Ω characteristic impedance to match the input impedance of the transceiver. Using a feeder whose impedance is not 50Ω to connect the antenna with the transceiver will reduce the performance of the antenna system, and may cause interference to the nearby radio and TV receivers, radio receivers and other electronic devices and even damage the transceiver.

Attention

- Transmitting without connecting antenna or other matched load is prohibited. Otherwise, the transceiver will be damaged. Be sure to connect the antenna to the transceiver before transmitting, and only when the connection is confirmed can the transmission be made.
- All fixed radio stations must be equipped with a lightning arrester to reduce the risk of damaging the transceiver by fire or electric shock.

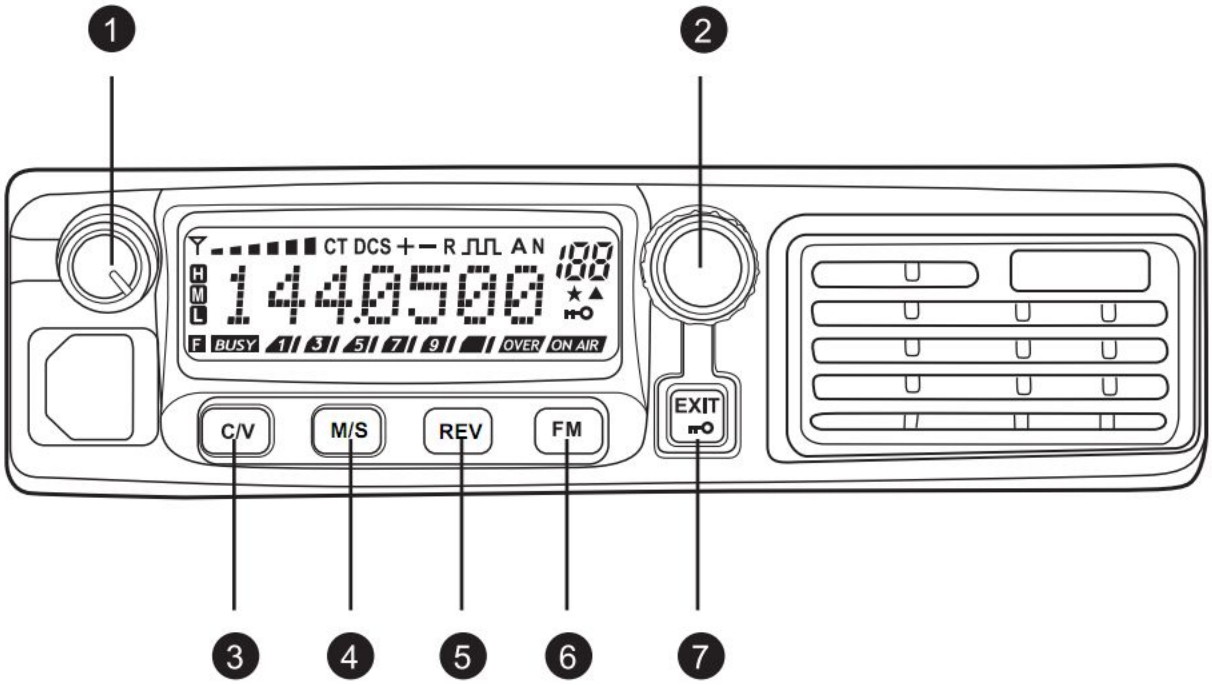


The location and mounting mode of the antenna on the vehicle are shown as follows:



Get Familiar with the Transceiver

Front Panel



① Power switch/volume knob

Press the switch to turn on or off the power of the transceiver (Page 12).

Turn the knob to adjust the receiving audio volume of the loudspeaker (Page 12).

② Function button/tuning knob

Press this button to enter the function menu mode. On the main menu, press the button to enter the submenu, press it once again after parameter adjustment to confirm and save it; on the main menu or submenu turn the tuning knob to enter the previous or next menu or previous or next option(Page 17).

Turn the knob to：

- Select the operation frequency in VFO mode (Page 14).
- Select the memory channel in channel mode (Page 26).
- Select the scanning direction in scanning (Page 27).
- Search the channel in FM radio mode (Page 36).

③ C/V Channel/frequency model switch

Press the key to switch between channel model and frequency model (Page 14).

- The channel model has two statuses：

  Frequency value + channel number

  Channel name + channel number
- When the unit works in the channel mode, the function menu is non-operable.

④ M/S MHz/scanning key

Shortly press the key to start the MHz tuning mode. If the needed operation frequency is far from the current frequency, use the MHz tuning mode to make a quicker adjustment. After the adjustment, press the function button to confirm (Page 15).

Press this key for long to start the scanning mode (Page 27).

⑤ REV **Frequency reverse key**

When the difference or non-standard difference frequency memory channel is used in operation, press this key to switch between the transmission frequency and receiving frequency (Page 23).

⑥ FM **FM radio start key**

Press this key to start or exit from FM radio.(Page 36).

⑦ EXIT **Exit/lock key**

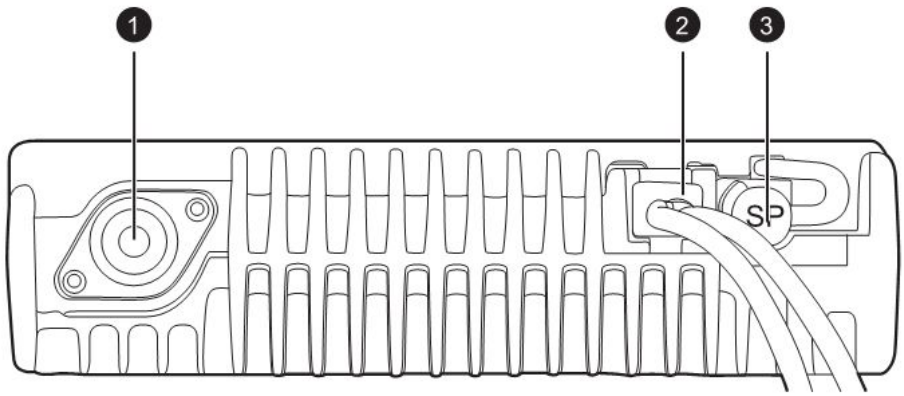
On the function menu, press this key to return to the previous menu or exit the function menu without saving（Page 17).Return to the standby mode. Press the key for more than 2 seconds to lock the keypad （Page 36).

Display Screen

Icon	Description
	No definition for this device
CT	Appears when the CTCSS function is activated.
DCS	Appears when the DCS function is activated.
+	Appears when the transmission difference frequency offset is set as positive.
—	Appears when the transmission difference frequency offset is set as negative.
R	Appears when the frequency reverse function is activated.
	Appears when the scrambling function is activated.
A	Appears when the companding function is activated.
N	Appears in narrow band mode.

188	Displays the number of memory channel and context menu.
▲	No definition for this device.
	Appears when the keypad is locked.
★	No definition for this device.
BUSY 1 3 5 7 9 OVER ON AIR	Displays the signal strength. When receiving signals, 1 3 5 7 9 OVER is equivalent to the signal strength table and when transmitting signals,it is equivalent to the transmission strength.
F	Appears when entering the function menu mode.
H M L	H will appear when a high power transmitting is selected and L, a low transmitting power.（M is not used in this device.）

Rear Panel



①**Antenna terminal**

Connect the external antenna here. The antenna impedance should be 50Ω.

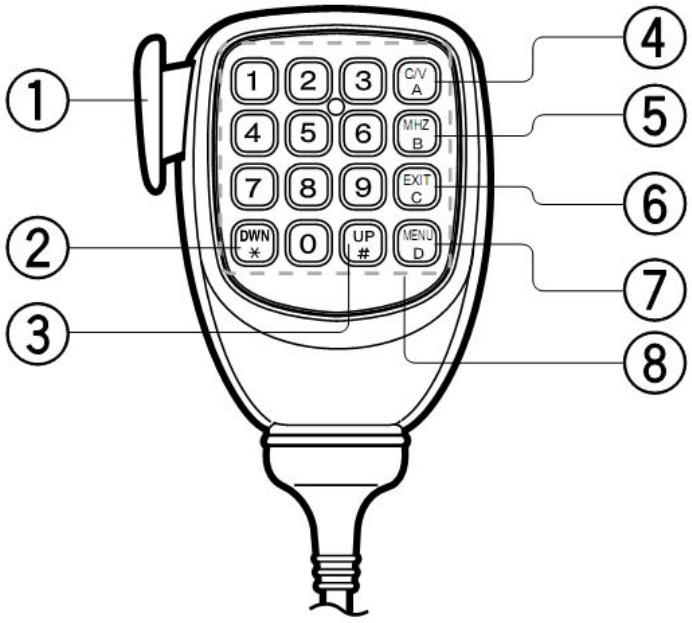
② **13.8V DC power cable**

Connect the 13.8V DC power supply here. Please use the DC power cable supplied with the device.

③ **SP（loudspeaker）jack**

Connect with an external speaker for better sound effect when necessary. The jack can contain a 3.5mm mono plug.

Handheld MIC



① PTT (push to talk) switch

Press this switch to transmit signals and release it to receive signals.

② DWN & * key

Press this key to reduce the operation frequency , memory channel number , menu number ,etc. Press this key continuously to repeat the operation .For a multi-option function , press this key to switch between different values. Press [PTT]on the handheld MIC and then press [DWN&*] to transmit *.

③ UP & # key

Press this key to increase the operation frequency , memory channel number , menu number ,etc .Press this key continuously to repeat the operation. For a multi-option , press this key to switch between different values.

Press [PTT] on the handheld MIC and then press [UP & #] to transmit #.

④ C/V & A key

It is the same as the [C/V] key on the front panel.

Press [PTT] on the handheld MIC and then press [C/V&A] to transmit A.

⑤ MHz & B key

Press the key to enter the MHz tuning mode

Press [PTT] on the handheld MIC and then press [MHz &B] to transmit B 按住手咪[PTT].

⑥ EXIT & C key

It is the same as the [EXIT] key to the front panel.

Press [PTT] on the handheld MIC and then press [EXIT& C] to transmit C.

⑦ MENU & D key

It is the same as the [function button] on the front panel.

Press [PTT] on the hand held MIC and then press [MENU& D] to transmit D

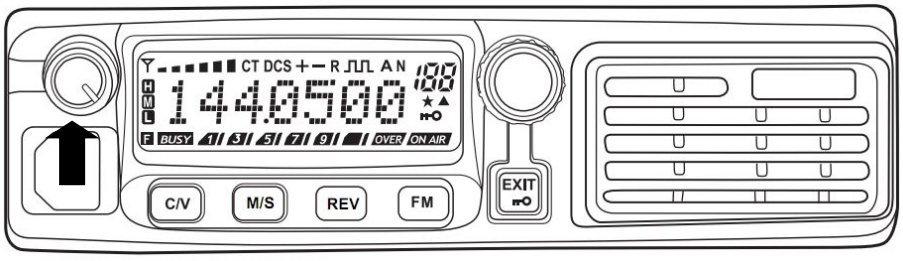
⑧ DTMF keypad

The keypad has 16keys for directly entering the operation frequency (Page 16) or the memory channel name (Page 24) and transmit DTMF number.

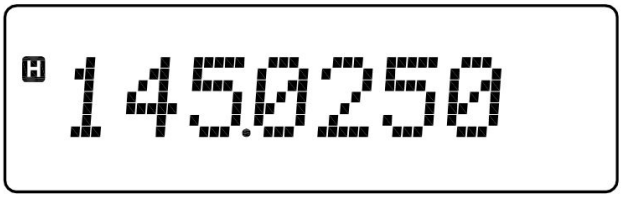
Basic Operations

Switch On/Off the Power

1. Press the [Power switch] for one second to switch on the power of the transceiver.



- The transceiver will make a long beep and the screen will display the startup information for a while and then the frequency and other index symbols.

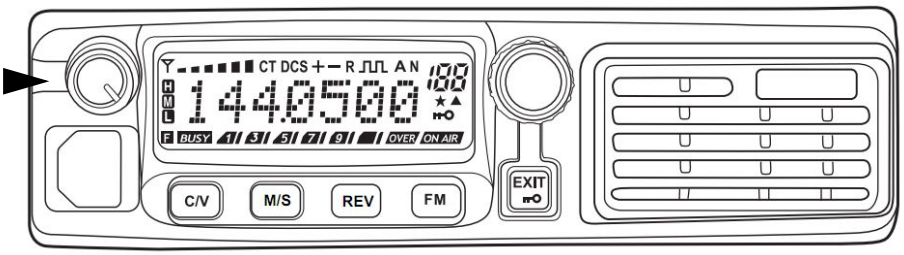


2. To turn off the transceiver, once again press the [Power switch] for one second.

- When the power of the transceiver is switched off,the transceiver will make a short beep sound.
- In switch-off, the transceiver will save the current frequency and parameters for call-up by the next startup.

Volume Adjustment

Clockwise turn the [Volume knob] to increase the output volume. Counter clockwise turn it to reduce the output volume.



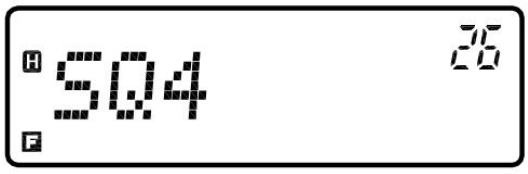
Squelch Level Adjustment

Selecting the squelch level is in fact to select a signal strength at which the squelch should be turn off . When the squelch function is on and the signal conforms to the set value , the loudspeaker will make a sound . The selection of a too high squelch level may make an insufficient receiving when the signal is weak while the selection of a too low squelch level may lead to interference by noise or other irrelative signals.

The squelch level should be selected according to the surrounding RF noise conditions.

1、 Press the [Function button], turn the [Tuning knob] and select “Menu number 26(SQL)”,The display will be :

2、 Then press the [Function button] again to enter the submenu , turn the [Tuning knob] and select”0,1,2,…”.



3、 After the selection , press the [Function button] to save the setting.

4、 Then press the[EXIT]to exit to the standby mode.

Transmission

1、 To transmit signals, please hold the handheld MIC to about 5cm from your mouth ,then press down the [PTT] switch on the handheld MIC and speak to it with normal voice.

- The display on the screen will be “ BUSY 1 3 5 7 9 OVER ”。

2、 After talk , release the [PTT] switch on the handheld MIC.

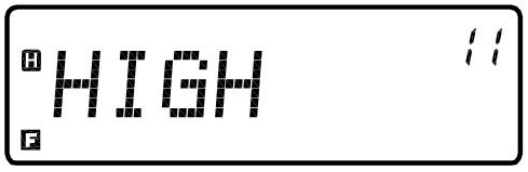
Note: If the continuous transmission exceeds the time designated in “Menu number 23” (Page 41), the transceiver will stop transmission. In this case release the [PTT] switch on the handheld MIC ,let the transmission stop for a while , and then press the [PTT] switch once again to continue the transmission.

Selection of Output power

You may set various transmission power levels.

1、 In VEO mode , press the [Function button],turn the [tuning knob] and select * Menu Number 11(POWER). The display will be :

2、 Then press the [Function button] again to enter the submenu , turn the [Tuning knob] and select ” HIGH (high power) or LOW (low power)”.



3、 After the selection , press the [Function button] to save the setting.

4、 Then press the [EXIT] to exit to the standby mode.

Attention

- Do not transmit with a high output power for long time . Otherwise , the transceiver may become too hot and unable to work normally.
- Continuous transmission may make the radiator overheated . In this case ,take care not to touch the radiator
- If the transceiver can not work normally due to overheating , it will automatically recover normal work when the radiator temperature is reduced .

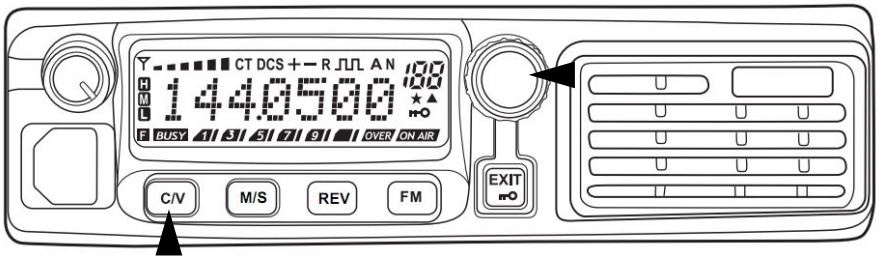
Note: When the transceiver becomes overheated due to high ambient temperature or continuous transmission ,the protection circuit may stop the transmission of the transceiver

Selection of Frequency

1、VFO mode (frequency mode)

The VFO mode is the basic mode for changing the operation frequency . Press [C/V] to enter the VFO mode.

Clockwise rotate the [Tuning knob] to increase the frequency and counter-clockwise to decrease the frequency . Or you may use [UP]/[DWN] on the handheld MIC to do the same.



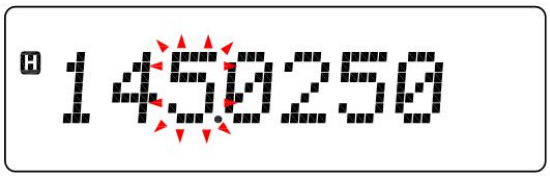
- Press and hold [UP]/[DWN] on the handheld MIC to continuously increase or decrease the frequency.

2、MHz tuning mode

If the desired operation frequency is far from the current frequency ,you may used the MHz tuning mode to make a quicker tuning：

a) In the VFO frequency mode , shortly press the [M/S]key.

- MHz digits will flash .



b) Turn the [Tuning knob] to select the needed MHz value .

c) Press the [Function button] to set the selected frequency and return to the normal VFO mode.

d) Use the [tuning knob] or [UP]/[DWN] on the handheld MIC to continuously

3、 Direct Entry of frequency by DTMF keypad

In addition to the [Tuning knob] and [UP]/[DWN] on the handheld MIC, you may select the frequency in another way . if the desired operation frequency is far from the current frequency ,you may use the keypad of the handheld MIC to directly enter the frequency .

① Press [C/V] to switch the transceiver to the VHF (frequency) mode .

- Only in the VFO mode can the frequency be directly entered

② Press the numeric keys（[0]～[9]） on the handheld MIC to directly enter the desired frequency .

- When using the numeric keys（[0]～[9]）on the handheld MIC to enter the desired frequency , a complete 6-digit value must be entered . If the entry exceeds 6digits , the frequency should be re-entered .
- If the desired frequency is a 7-digit number , after the entry of a 6-digit value , the frequency will automatically be rounded off to a near available frequency according to the set frequency step and it should be adjusted to the desired frequency by the [Tuning knob] or [UP]/[DWN] on the handheld MIC.
- In the frequency entry status , you may press [EXIT/C] on the handheld MIC to exit the frequency entry status.

Example 1

To select a frequency of 145.025MHz，set the frequency step to be 5KHz。

key	Display
[1]，[4]，[5]	145---
[0]，[2]，[5]	1450250

Example 2

To select a frequency of 145.0375MHz，set the frequency step to be 12.5KHz。

Key	Display
[1]，[4]，[5]	145---
[0]，[3]，[7]	1450250
[UP]	1450375

Not：If the frequency entered does not conform to the current frequency step , the frequency will automatically be rounded off to a near available frequency. If a desired frequency can not be specifically entered , please inspect the frequency step (Page 38).

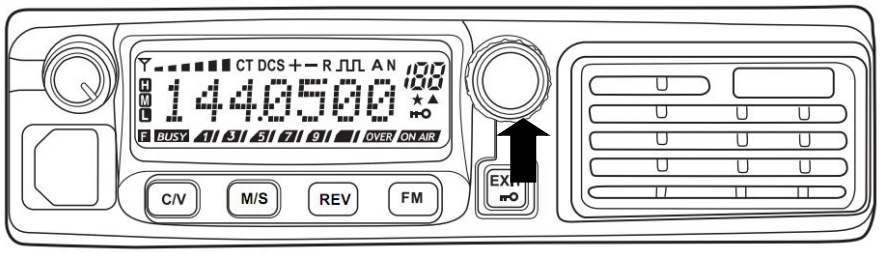
Context Menu Mode

Many of the function of the transceiver are selected of set through the context menu (not real control

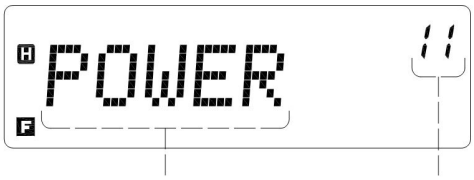
buttons).when you are familiar with context menu system, you will like it as it provides many functional conveniences.

Context Menu Setting Table

1、 Shortly press the [Function button] is used for setting context menu table.

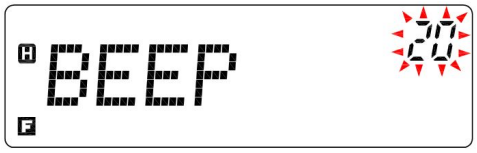


- The name and number of the context menu will appear on the display screen.



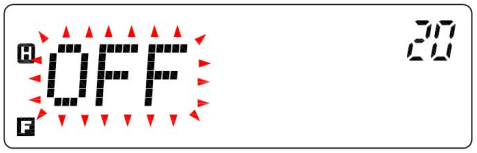
Name of context menu Number of context menu

2、 Turn the [Tuning knob] to select the desired context menu.



3、 Shortly press the [function button] to enter the submenu and set the value of the current context menu.

4、 Turn the [Tuning knob] to select the desired value for the selected context menu。



5、 Shortly press the [Function button] to confirm the desired value.

6、 Repeat press the [Function button] to confirm the desired value.

- Shortly press the [EXIT]to cancel the setting of the context menu and return to the interface of selecting the context menu mode
- Once again shortly press the [EXIT]to exit the context menu mode

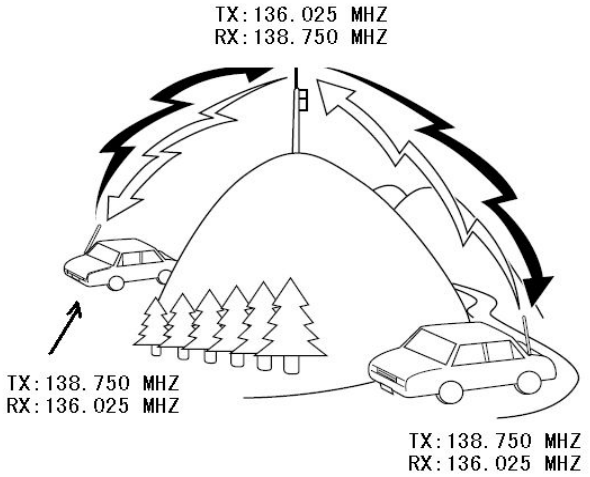
Context Menu Setting Table

No. of context menu	Display	Description	Set value	Preset	Reference page
01	R-CTCSS	Setting of CTCSS for receiving	OFF：closed 67.0~254.1Hz	OFF	28
02	R-DCS-N	Setting of the positive code of DCS for receiving	OFF：closed D023N~D754N	OFF	29
03	R-DCS-I	Setting of the inverse code of DCS for receiving	OFF：closed D023I~D754I	OFF	30
04	R-DTMF	Setting of DTMF for receiving	OFF：closed DTMF1-8	OFF	32
05	SP-MUTE	Squelch mode	QT：quiet talk QT+DTMF：quiet talk + dual tone multiple frequency	QT	32
06	T-CTCSS	Setting of continuous tone coded squelch system for transmission	OFF：closed 67.0~254.1Hz	OFF	28
07	T-DCS-N	Setting of the positive code of digital coded system DCS for transmission	OFF：closed D023N~D754N	OFF	30
08	T-DCS-I	Setting of the inverse code of digital coded system DCS for transmission	OFF：closed D023I~D754I	OFF	31
09	T-DTMF	Setting of dual tone multiple frequency for transmission	OFF：closed DTMF1-8	OFF	33
10	PTT-ID	Transmission of ID code	OFF：closed BOT： press to transmit the code EOT：release to transmit the code BOTH： press or release to transmit the code	OFF	34
11	POWER	Setting of transmission power	HIGH: high power LOW: lower power	HIGH	14
12	W/NA	Selection of broad or narrow band	WIDE: wide band NARR: narrow band	WIDE	37
13	COMP	Voice companding	OFF: closed ON: open	OFF	37
14	SRMR	Voice encryption	OFF: closed ON: open	OFF	38
15	SFT	Frequency difference offset direction	OFF: closed (+): positive difference (-): negative difference	OFF	20
16	OFFSET	Offset frequency	00.0000-90.0000MHz	00.0000	21

17	STEP	Frequency step	2.50K 、 5.00K 、 6.25K 、 10.00K 、 12.50K 、 25K 、 50.00K	5.00K	38
18	CH-SAVE	Channel storage	128 signal channels	CH-001	24
19	CH-DEL	Channel deletion	128 signal channels	CH-001	26
20	BEEP	Prompt tone	OFF：closed ON：open	ON	39
21	LED	Backlight	OFF：closed LED1：dark LED2：normal LED3：bright	LED3	40
22	BCL	Busy channel lock	OFF：closed ON：open	OFF	40
23	TOT	Time out time	OFF：closed 30S~600S（20 shifts）	OFF	41
24	TONE	Pilot carrier frequency	1000Hz 1450Hz 1750Hz 2100Hz	1000HZ	22
25	DTMF-TM	DTMF transmission time	50MS 100MS 150MS 200MS	100MS	35
26	SQL	Squelch level adjustment	0~9 levels	SQ4	13
27	DTMF	DTMF group	8 groups	-------	31
28	RESET	Reset	RST-NO: do not reset RST-YES: reset	RES-NO	41

Operation via Repeater

The repeaters are generally installed and maintained by radio clubs or sometimes, in cooperation with local communication system enterprises.
Compared with simplex communication, you can generally transmit over a farther distance via a repeater. Repeaters are generally installed at mountain top or other higher positions and can operate at an ERP (effective transmission power) higher than that of general radio stations. Installation in a higher position plus a high ERP can realize communication over a longer distance.



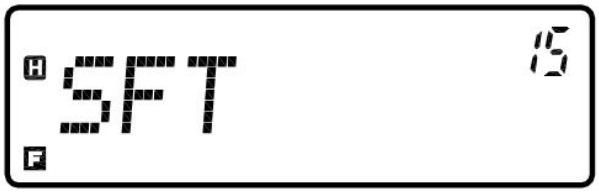
Setting a Repeater

Most repeaters adopt receiving/transmission frequency pairs with standard or non-standard frequency difference offset (different frequencies for transmission and receiving). Moreover, some repeaters can be utilized only when receiving audio frequency from a transceiver. For details, please consult the owner of the local repeater system.

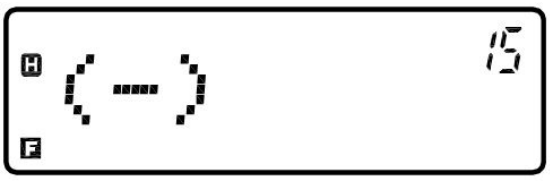
1. Selection of frequency difference offset direction

The offset direction can enable your transmission frequency to be higher (+) or lower (-) than the receiving frequency.

1. Shortly press the [Function button] to enter the context menu.
2. Turn the [Tuning knob] and select Item 15 of the context menu as shown in the figure.



3. Shortly press the [Function button] to set up the current context menu.
4. Turn the [Tuning knob] and select “OFF (turn-off), (+) positive offset or (-) negative offset”

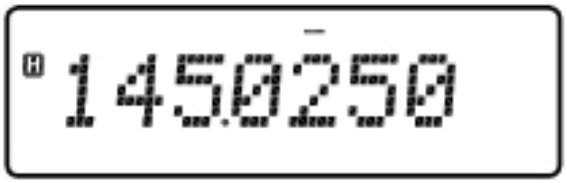


5. Shortly press the [Function button] to confirm and save the desired values.

According to the site of the operation frequency in the band, when the offset is valid, these icons will be displayed on the screen.

- Positive frequency offset (+)

- Negative frequency offset (-)



Or shortly press [EXIT] to return to the context menu mode without saving.

6. Shortly press [EXIT] to exit the context menu mode.

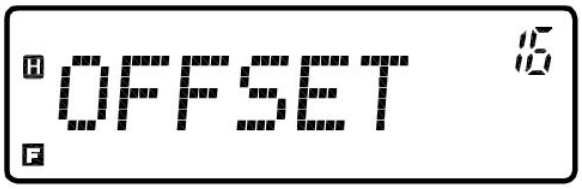
If the transmission frequency after offset exceeds the permissible scope, the transmission will be prohibited. Adopt one of the following methods to adjust the transmission frequency to be within the band restriction scope.

- Increase or decrease the receiving frequency within the band.
- Change the offset direction.

2. Selection of offset frequency

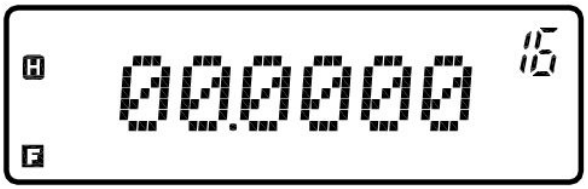
The offset frequency is the transmission frequency value deviated from the receiving frequency.

1. Shortly press the [Function button] to enter the context menu.
2. Turn the [Tuning knob] and select Item 16 of the context menu as shown in the figure.



3. Shortly press the [Function button] to set up the current context menu.
4. Directly enter the desired offset frequency via the keypad of handheld MIC, which will be

automatically saved.



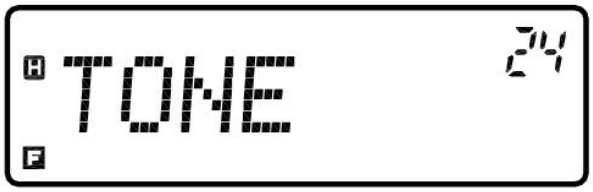
5. Shortly press the [Function button] to return to the context menu mode.
6. Shortly press the [EXIT] to exit the context menu mode.

Note: The available offset frequency values are from 00.000MHz to 90.000MHz.

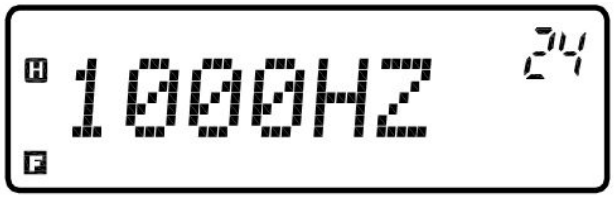
Selecting the Pilot Frequency

This function is used to wake up the repeater in sleep status. Such repeater needs to be awaked by pilot frequency of certain intensity. Generally, when the repeater is waked up, it is not necessary to transmit the pilot frequency again.

1. Shortly press the [Function button] to return to the context menu mode.
2. Rotate the [Tuning knob] and select Item 24 of the context menu.



3. Shortly press the tuning knob [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] and select from “1000Hz, 1450Hz, 1750Hz or 2100Hz”.



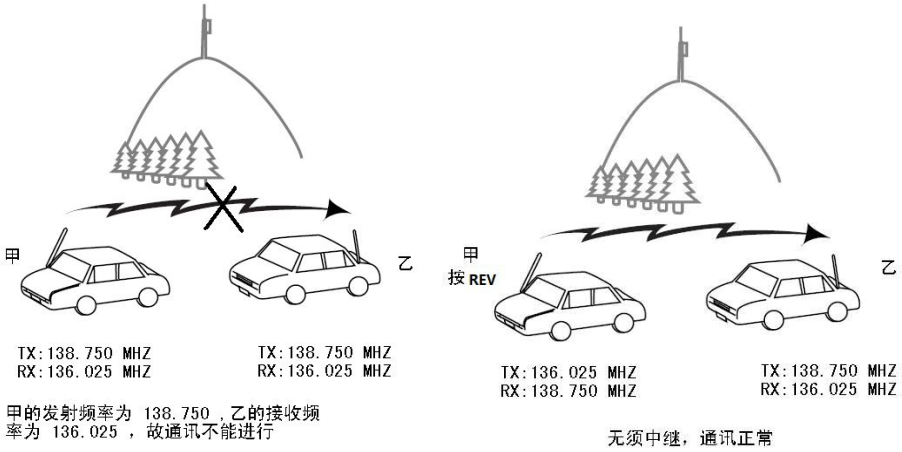
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Transmitting the Pilot Frequency

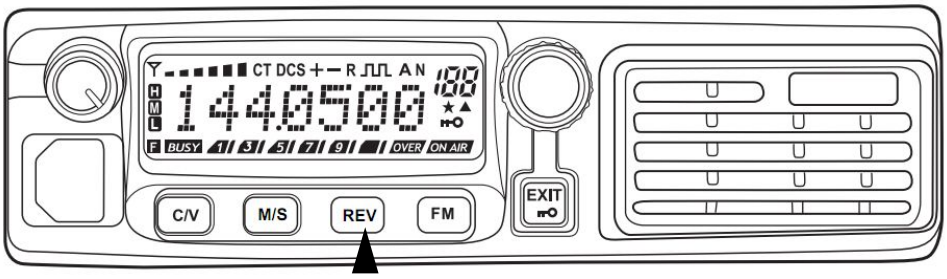
Press the [PTT] key on the handheld MIC to transmit the pilot frequency and then press the [EXIT] on the front panel to send the pilot frequency.

Reverse Frequency Function

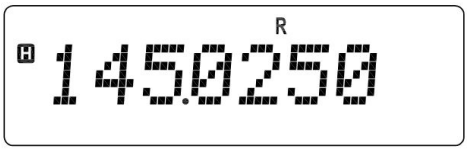
After setting up the receiving and transmission frequencies separately, use the reverse frequency function to switch them so that you may manually inspect the strength of the signals received from other radio stations while using the repeater. If the signal of such radio station is very strong, move to the simplex frequency to continue the connection and suspend the connection with the repeater.



Shortly press the [REV] to switch the frequencies.



When the reverse frequency function is activated, the symbol “R” will appear on the display screen.



Memory Channel

In the memory channel, you may store frequently used frequencies and related data. Then, you do not need to set up every time. Instead, you may quickly call the set channel through simple operations. There are 128 memory channels on the left and right bands respectively.

Simplex Same-Frequency Transmitting/Receiving or Different-Frequency Transmitting/Receiving?

Set any memory channel as the one for simplex same-frequency transmitting/receiving or different-frequency transmitting/receiving. Select any of the application methods for each channel as required.

The channel for simplex same-frequency transmitting/receiving allows:

- Operation of simplex frequency.

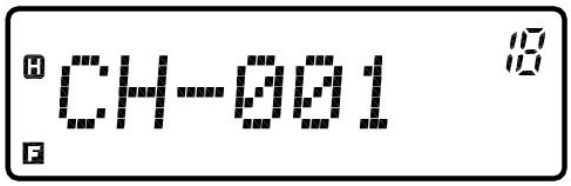
The memory channel for different-frequency transmitting/receiving allows:

- Operation of the repeater with non-standard frequency difference offset.

Saving Simplex and Standard Transmitting/Receiving Frequencies in Memory Channel

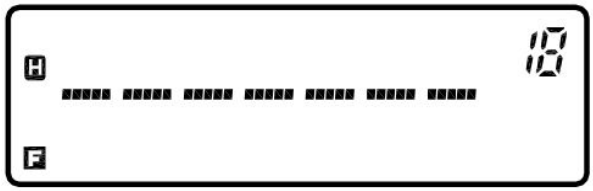
1. Shortly press the [C/V] to enter VFO mode.
2. Rotate the [Tuning knob] to select the desired frequency.
   - Besides, you may press [UP]/[DOWN] on the handheld MIC to select the frequency or enter the frequency on its keypad.
3. Any other data necessary for frequency setting.
   - Audio frequency, CTCSS frequency, DCS code, etc.
4. Shortly press the [Function button] to enter the context menu.
5. Rotate the [Tuning knob] to select Item 18 on the context menu.

6. Shortly press the [Function button] to set up the current context menu.
7. Rotate the [Tuning knob] and select the desired memory channel number.



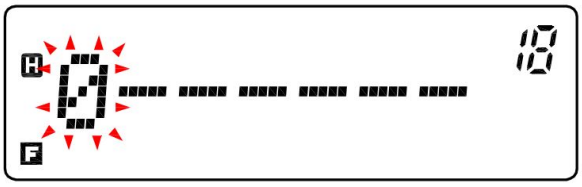
8. Shortly press the [Function button] to confirm and save the desired values and enter the channel name entry status.

- If the channel name is not to be set（using the default name such as "CH-001），skip over Steps 9-10 and directly and shortly press the [Function button] to confirm and save.



9. Shortly press the [C/V] to select character. Rotate the [Tuning knob] or press [UP]/[DWN] on the handheld MIC to select the desired symbol.

- The current input digit will flash.



10. Shortly press [C/V] to enter the next character.

11. Repeat Steps 9-10 till all desired characters are entered. Shortly press the [Function button] to confirm and save.

12. Shortly press [EXIT] to exit the context menu mode.

Note: Saving receiving and transmitting frequencies that have been stored will overlap the original stored information in the memory channel**.**

Saving Different-Frequency Transmitting/Receiving Frequencies in Memory Channel

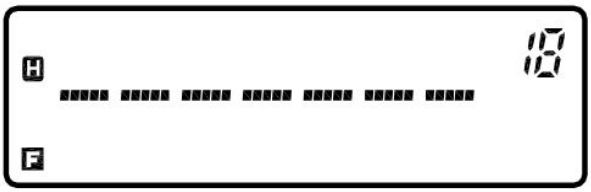
Some repeaters use the transmitting/receiving frequencies with non-standard frequency difference offsets. To save these repeaters, two separate frequencies should be stored in the memory channel. Then, you may operate these repeaters without changing the offset frequencies stored in the context menu.

1. Shortly press [C/V] to enter VFO mode.
2. Rotate the [Tuning knob] to select the desired receiving frequency.
   - Besides, you may press [UP]/[DOWN] on the handheld MIC to select the frequency.
3. Set up the transmission frequency with a difference higher than (positive offset) or lower than (negative offset) the receiving frequency.
   - Set the offset direction. (Page 20)
   - Set the offset frequency. (Page 21)
4. Any other data necessary for frequency setting.
   - Audio frequency, CTCSS frequency, DCS code, etc.
5. Shortly press the [Function button] to enter the context menu.
6. Rotate the [Tuning knob] to select Item 18 on the context menu.

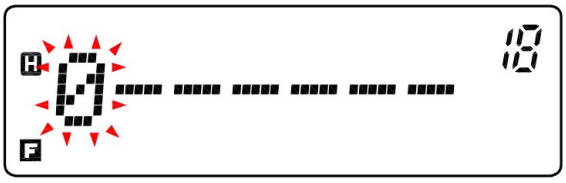
7. Shortly press the [Function button] to set up the current context menu.
8. Rotate the [Tuning knob] and select the desired memory channel number.

9. Shortly press the [Function button] to confirm and save the desired values and enter the channel name entry status.

- If the channel name is not to be set（using the default name such as“CH-001），skip over Steps 10-11 and directly and shortly press the [Function button] to confirm and save.



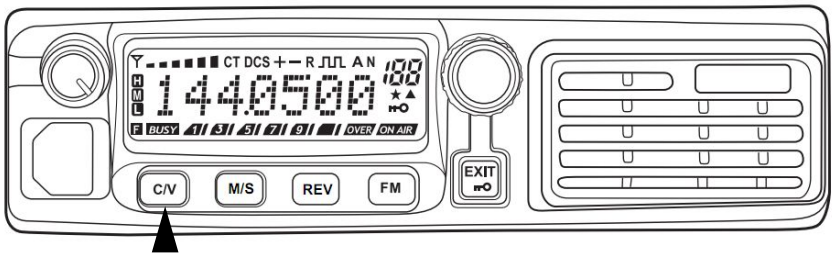
10. Shortly press [C/V] to select character. Rotate the [Tuning knob] or press [UP]/[DWN] on the handheld MIC to select the desired symbol
    - The current input digit will flash.



11. Shortly press [C/V] to enter the next character.
12. Repeat Steps 10-11 till all desired characters are entered. Shortly press the [Function button] to confirm and save.
13. Shortly press [EXIT] to exit the context menu mode.

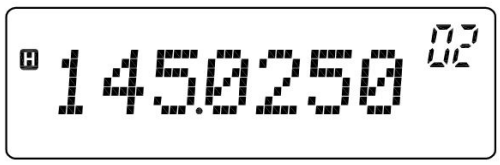
Using the Memory Channel

1. Shortly press [C/V] to enter the mode of using memory channel.

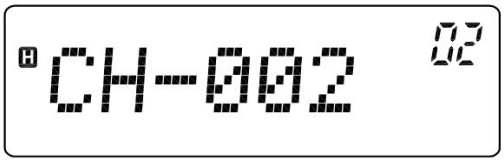


In the frequency model，

- Press [C/V] once to enter the frequency + channel number model.



- Press [C/V] twice to enter the channel name + channel number mode.

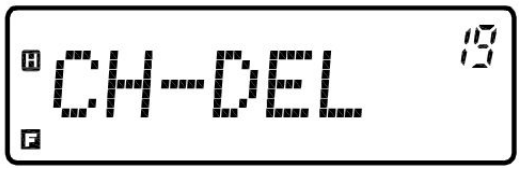


2. Rotate the [Tuning knob] to select the desired memory channel number.

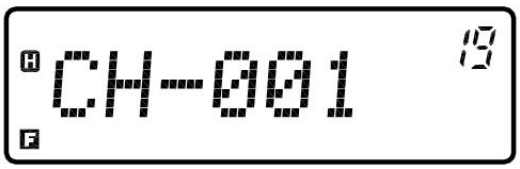
- Besides, you may press the [UP]/[DWN] on the handheld MIC to select the channel .
- The empty memory channel can not be called-out

Clearing the Memory Channel

1. Shortly press the [Tuning knob] to select Item 19 on the context menu
2. Rotate the [Tuning knob] to select Item 19 on the context menu .



3. Shortly press the [Function button] to set up the current context menu
4. Rotate the [Tuning knob] and select the desired channel number .



5. Shortly press the [Function button] to confirm the deletion of this channel . Or shortly press [EXIT] to return to the context menu
6. Shortly press [EXIT]to exit the context menu mode

Scanning

The " scanning " function is used for automatically monitoring the desired frequencies. Acquainting yourself with the scanning function will greatly improve your operating efficiency.

This transceiver provides the following scanning modes

1. VFO scanning: In the VFO frequency mode, it will scan the whole frequency band with setp frequency.
2. Channel scanning : In the memory channel mode , it will scan all channels stored in the memory channels.

Start the scanning

To start the scanning,

1. Shortly press [C/V] to select the scanning mode.
2. Long press [M/S] to start the scanning.

When a matched signal is detected, the transceiver will stay at the busy frequency or memory channel till

8 seconds after the signal disappears and then continue to scan.

When the transceiver is in the scanning status,

1. Shortly press the [Function button] to stop scanning and keep the transceiver at the current frequency or memory channel.
   - You may also press the [PTT] key on the handheld MIC to stop scanning and make conversation at the current frequency or memory channel.
2. Shortly press [EXIT] to exit the scanning status and return to the frequency or memory channel used before the scanning

Note：

- When the CTCSS or DCS is activated, the transceiver will stay at the busy frequency and decode the CTCSS audio frequency or DSC codes. If the audio frequency or the code are matched , the squelch will be stopped. Otherwise, the transceiver will resume the scanning.
- In scanning, you may rotate the [Tuning knob] to change the direction of scanning frequency.
- Adjust the squelch level before using the "scanning" function. Too low a squelch level may lead to immediate stop of "scanning".

Continuous Tone Coded Squelch System "CTCSS"

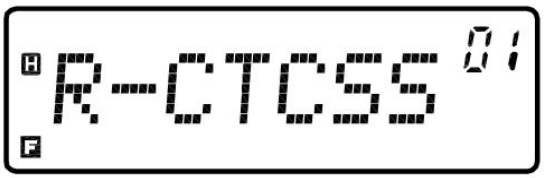
Sometimes, you may need to hear calls from only specific persons. Continuous Tone Squelch System "CTCSS" can allow you to ignore (not hear) the unwanted calls from other persons using the same frequency. To use this function, please choose the CTCSS audio frequency selected by other persons of your group. CTCSS audio frequency cannot be heard. (Refer to the CTCSS Audio frequency List in the annex)

Note: CTCSS does not guarantee your conversation privacy. It only helps you avoid irrelevant calls.

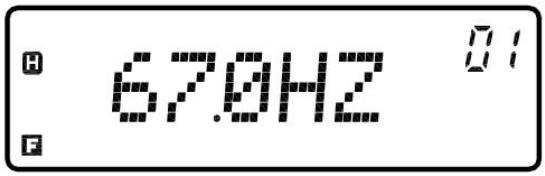
Using CTCSS

■ Receive CTCSS

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 01 on the context menu



3. Shortly press the [Function button] to set the current context menu
4. Rotate the [Tuning knob] or press the [UP]/[DOWN] on the handheld MIC to select OFF or the desired CTCSS frequency.

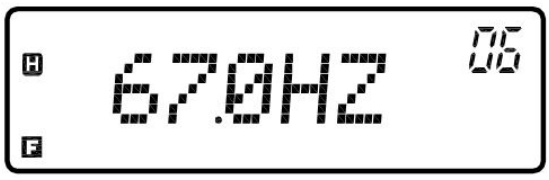


5. Shortly press the [Function button] to confirm and save the desired values. Return to the context menu mode. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

■ **Transmitting CTCSS**

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 06 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] or press the [UP]/[DOWN] on the handheld MIC to to select from “OFF or desired CTCSS frequency”.



5. Shortly press the [Function button] to confirm and save the desired values. Return to the context menu mode. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Digital Coded Squelch（DCS）

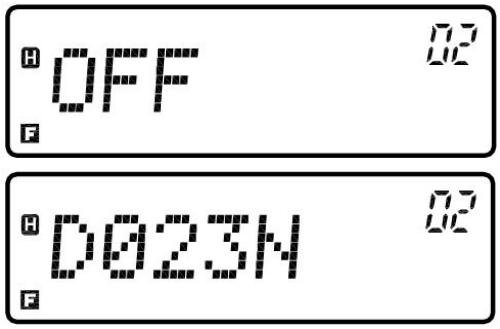
The Digital Coded Squelch (DCS) is another way to ignore (not to hear) the irrelative calls of other persons using the same frequency. Its function is the same as that of CTCSS. The only difference lies in the coding/decoding method and the optional code quantity. (Refer to the DCS Code List in the annex.)

Using DCS

■ Receiving DCS-N (DCS positive code)

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 02 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn-off) or the desired DCS code”.

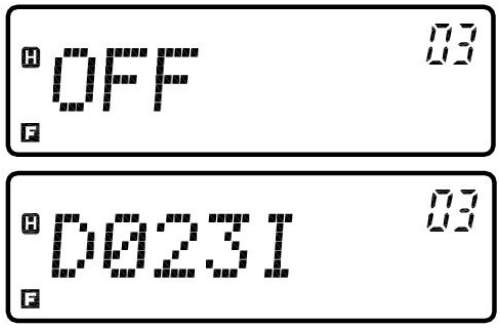


5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

■ Receiving DCS-I (DCS inverse code)

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 03 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn off) or the desired DCS code”.

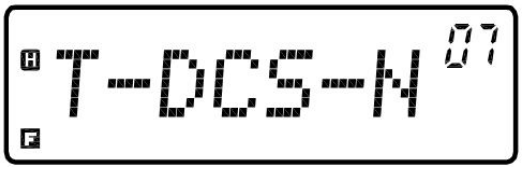


5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.

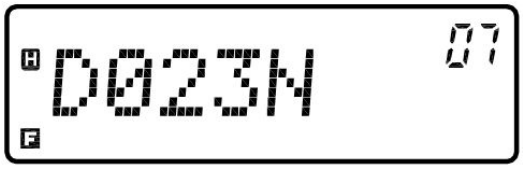
6. Shortly press [EXIT] to exit the context menu mode.

■ Transmitting DCS-N (DCS positive code)

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 07 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn off) or the desired DCS code”.



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

■ Transmitting DCS-I (DCS inverse code)

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 08 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn off) or the desired DCS code”.

5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Dual Tone Multiple Frequency (DTMF)

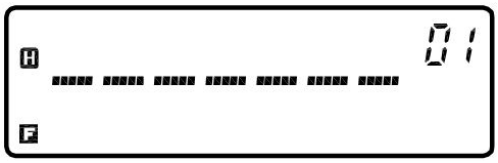
In addition to CTCSS and DCS which can allow you to ignore (not to hear) the irrelative calls of other persons using the same frequency, you may use DTMF system to reach the same result.

You may set up different receiving DTMF code blocks pertinent to individuals or groups so as to make selective calls.

Setting the DTMF code block

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 27 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select any block from “01-08”.



5. Use the keypad of the handheld MIC to enter the desired block, like “1, 2, 3, 4, 5, 6 and 7”.

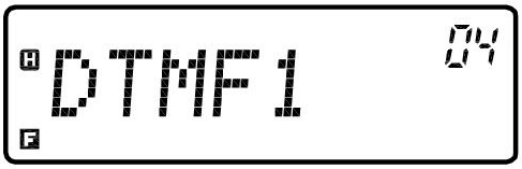
- Shortly press [EXIT] to delete the current block number.

6. Shortly press the [Function button] to confirm and save the desired values and automatically return to the superior menu. Or rotate the [Tuning knob] to enter the setting for the next block without saving the current value. Or shortly press [EXIT] to return to the context menu mode without saving.
7. Repeat Steps 3-6 and you may enter the desired codes for other blocks.
8. Shortly press [EXIT] to exit the context menu mode.

Selecting the receiving DTMF code block

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 04 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF or DTMF1, DTMF2------DTMF8)”.



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Selecting squelch mode

To use the DTMF system, you need to select QT+DTMF for the squelch mode. Only the correct QT and DTMF frequencies are received can the speaker sounds.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 04 on the context menu.

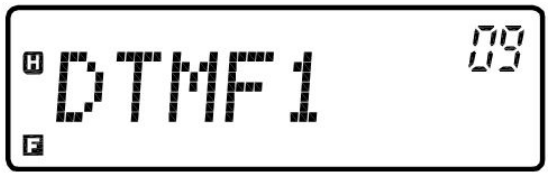
3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “QT or QT+DTMF”.

5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Selecting the transmitting DTMF code block

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 09 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF or DTMF1, DTMF2------DTMF8)”.



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Selecting the DTMF transmission mode

1. Manual call

The keys on the keypad of the handheld MIC have the same function as DTMF keys: 12 keys on the keypad phone and 4 other keys (A, B, C and D).

The manual call can transmit DTMF audio frequency in only two steps.

1. Press the [PTT] key on the handheld MIC.

2. Press the keys in the keypad zone in sequence to transmit DTMF audio frequency.

Frequency（Hz）	1209	1336	1447	1633
697	[1]	[2]	[3]	[A]
770	[4]	[5]	[6]	[B]
852	[7]	[8]	[9]	[C]
941	[*]	[0]	[#]	[D]

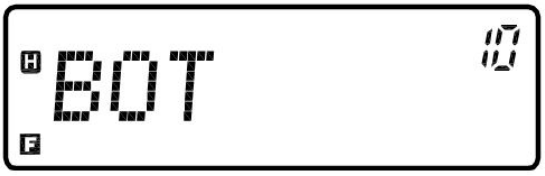
2. Auto code transmission

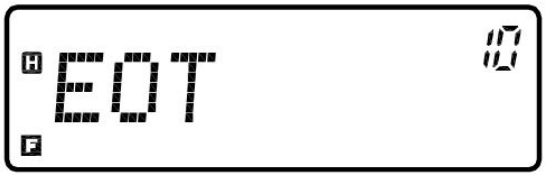
There are three ways to realize the automatic transmission of DTMF frequency block：

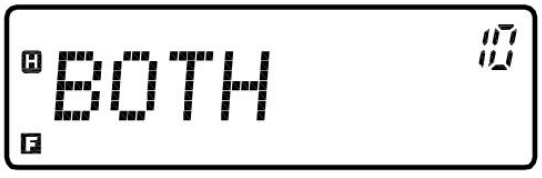
- Press PTT to transmit code.
- Release PTT to transmit code.
- Press or release PTT to transmit code.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 10 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF, BOT (press for code transmission), EOT (release for code transmission) or BOTH (code transmission by either pressing or releasing)”.







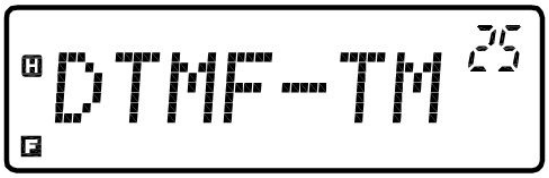
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.

6. Shortly press [EXIT] to exit the context menu mode.

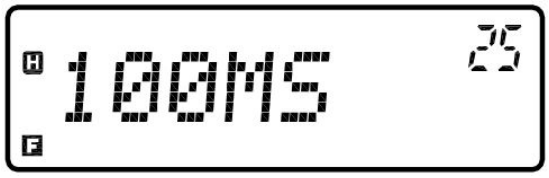
Selecting the DTMF transmission time

You may change the time for pause during the transmission of DTMF codes.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 25 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “50MS, 100MS, 150MS or 200MS”.



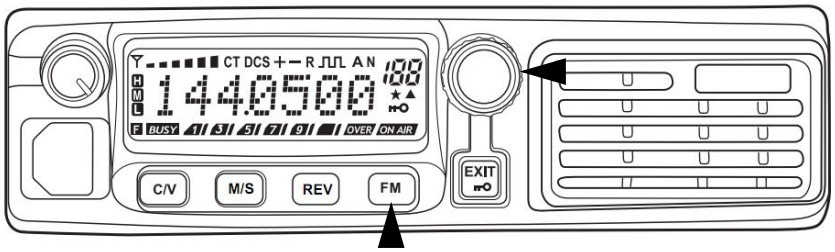
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

FM Radio

Using FM radio

The product has built-in FM radio function. Turn on the FM radio as follows.

1. Shortly press [FM] to turn on the FM radio function. Rotate the [Tuning knob] to make automatic search.
   - Clockwise rotation is for upward search and counterclockwise rotation for downward search.



2. Once again shortly press [FM] to turn off the FM radio function..

Auxiliary Functions

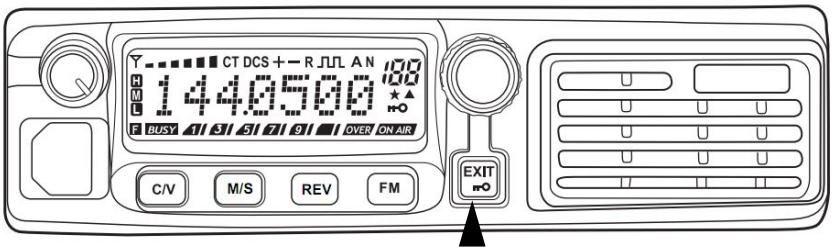
Power-on Information

Each time you turn on the power supply of the transceiver, the related information will appear on the display screen for about 2 seconds. You may design your preferred information via frequency-writing software to replace the preset information..

Key Locking

The key locking function will disable most keys except the volume knob and [PTT] to avoid wrong activation of a certain function..

1. To enable key locking function, press [EXIT] for 2 seconds.

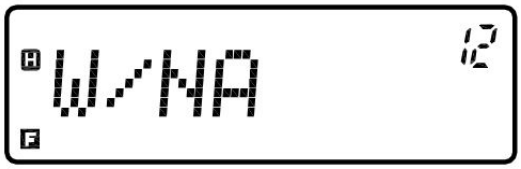


2. Once again press [EXIT] for 2 seconds to release the key locking.

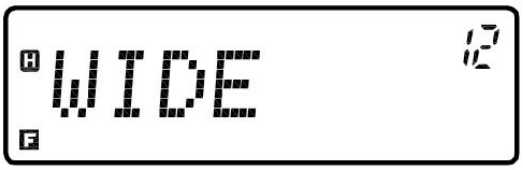
Setting Wide and Narrow Bands

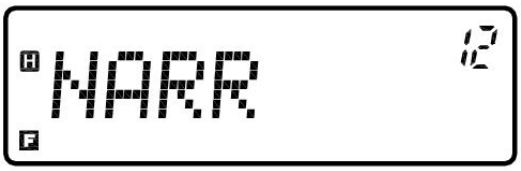
Select legal communication modes according to the regulation of each country.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 12 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “WIDE (wide band) or NARR (narrow band)”.





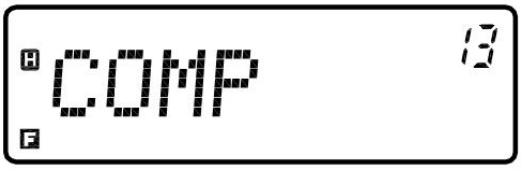
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Setting the Voice Companding Function (for reducing noise and improving conversation clarity)

This function can effectively reduce noise and improve conversation clarity, especially for long distance communication.

You may also enable the function via context menu.

1. Shortly press the [Function button] to enter the context menu..
2. Rotate the [Tuning knob] to select Item 13 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn-off) or ON (turn-on)”.

5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Setting the Voice Encryption function (against eavesdropping)

This is a special voice processing mode, which can make a transceiver with the same frequency hear only scrambled voice, playing an effective role of confidentiality. The voice can only be clearly heard by a transceiver using the same function and in open status.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 14 on the context menu.

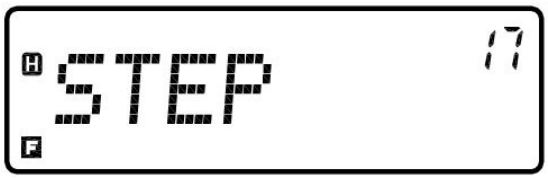
3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn-off) or ON (turn-on)”.

5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

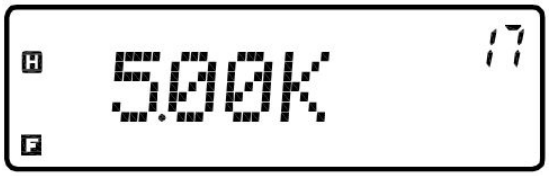
Setting the Frequency Step

Selecting a correct frequency step is of great importance to the selection of an accurate frequency.

1. Shortly press the [Function button] to enter the context menu..
2. Rotate the [Tuning knob] to select Item 14 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “2.50K, 5.00K, 6.25K, 10.00K, 12.50K, 25.00K or 50.00K”.



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.

6. Shortly press [EXIT] to exit the context menu mode.

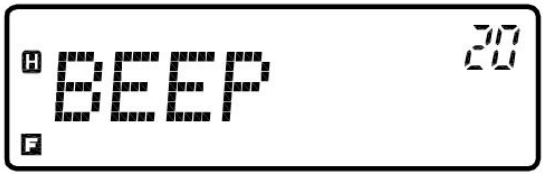
Attention

- If a 6.25K step value is selected, the frequency value may be an 8-digit number and the 8th digit will not be displayed. For example, the desired frequency value is 145.03125MHz, only the first seven digits "145.0312" will be displayed after setting.

Setting the Prompt Tone

The prompt tone is a function for confirming the operation, operation error or fault status of the product. You can set to enable or disable the prompt tone function..

1. Shortly press the [Function button] to enter the context menu..
2. Rotate the [Tuning knob] to select Item 20 on the context menu.

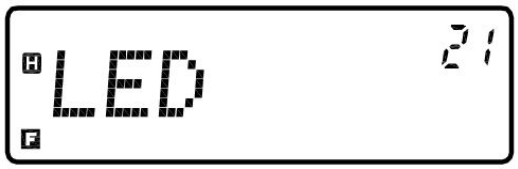


3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from "OFF (turn-off) or ON (turn-on)".

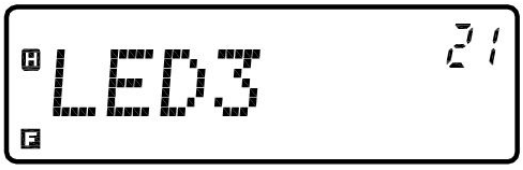
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Setting Backlight

1. Shortly press the [Function button] to enter the context menu..
2. Rotate the [Tuning knob] to select Item 20 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn-off), LED1 (red), LED2 (blue), LED3 (purple), LED4 (green), LED5 (yellow), LED6 (light blue) or LED7 (white)”.



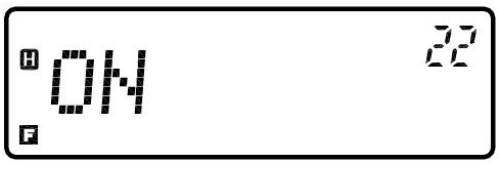
5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Setting Busy Channel Lock

When this function is turned on, you may not transmit on the busy channel to avoid interfering with the transceiver using the same frequency. When the current channel is busy and you press [PTT], the transceiver will give out the prompt of error and return to the receiving status.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 22 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from “OFF (turn-off) or ON (turn-on)”.



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to

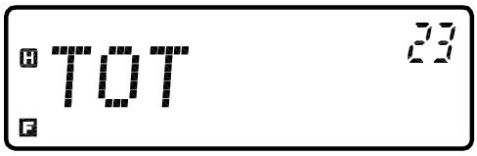
return to the context menu mode without saving.

6. Shortly press [EXIT] to exit the context menu mode.

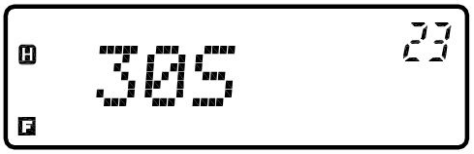
Setting Transmission Time-out Timer (TOT)

Sometimes, it is required or necessary to restrict the time for each continuous transmission. You may utilize this function to prevent a repeater from time-out if it is connected or to save battery power.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 23 on the context menu.



3. Shortly press the [Function button] to set up the current context menu.
4. Rotate the [Tuning knob] to select from "OFF (turn-off) or 30S, 60S……600S (an interval of 30S)".



5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

When the transmission TOT is time-out, the transceiver will give out a prompt tone and automatically return to the receiving mode. To continue the transmission, release the [PTT] key on the handheld MIC and then press it again.

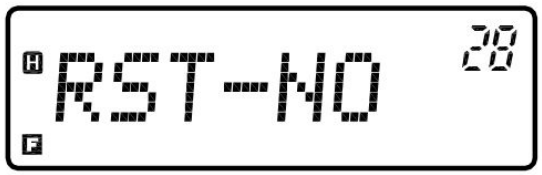
Restoring Factory Setting (RESET)

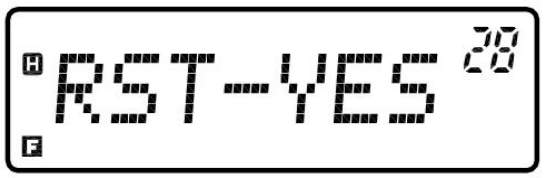
If miss-operation or wrong setting has resulted in failing to use this product normally, you may use this function to restore all settings of the product to factory default settings.

1. Shortly press the [Function button] to enter the context menu.
2. Rotate the [Tuning knob] to select Item 28 on the context menu.

3. Shortly press the [Function button] to set up the current context menu.

4. Rotate the [Tuning knob] to select from “RST-NO (do not reset) or RST-YES (reset)”.
   - When the RST-YES (reset) is selected, all menu items will be reset to factory default settings.
   - The information in the memory channels will not be deleted after reset.





5. Shortly press the [Function button] to confirm and save the desired values. Or shortly press [EXIT] to return to the context menu mode without saving.
6. Shortly press [EXIT] to exit the context menu mode.

Maintenance

General Information

The product has been tuned in accordance with the specifications and passed the testing before delivery. Any attempt to repair or tune the product without the manufacturer’s authorization may lead to invalidity of the warranty.

Repair

When sending the product to your distributer for repair, please use the original package and submit the detailed fault description. Do not send only the component or the PCB. Please send the whole product.

Clean-up

For cleaning the product, please use neutral cleanser (do not use chemical of high concentration) and wet cloth.

Troubleshooting

The problems described in the table are troubles you may often encounter with in operation other than circuit-related faults.

Trouble	Possible cause	Solution
When it is connected with a 13.8V DC power supply and its power button is pressed, the transceiver cannot be activated and there is no display on the screen.	1. Reverse connection of power supply cables 2. One or several fuse(s) is (are) blown.	1. Correctly connect the supplied DC power cable (connect the red wire to the + terminal and the black to the – terminal). 2. Find out the cause for blown fuse, remove it and install a new fuse with the same rated value.
It is unable to select the frequency by rotating the tuning knob or press [UP]/[DOWN] on the handheld MIC.	The memory channel mode has been selected.	Press [C/V] to switch to the frequency mode.
It is unable to select the memory channel by rotating the tuning knob or press [UP]/[DOWN] on the handheld MIC.	No data have been stored in the memory channel.	Store data in some memory channels.
It is unable to transmit even if the [PTT] is pressed.	1. The plug of the handheld MIC is not fully inserted into the transceiver. 2. You may have selected a transmission offset that makes the transmission frequency out of the permissible scope. 3.A long continuous transmitting has led to a too high temperature of the transceiver. 4.The power supply voltage is too high or too low.	1. Turn off the power and insert the plug of the handheld MIC till a click sound of the locking tab is heard. 2. Turn off the offset repeater function. 3.Let aside the transceiver till its temperature is reduced to a normal value. 4.Adjust the power voltage to the normal value.

Technical Parameters

Annex 1: CTCSS Frequency Table

CTCSS标准频率表									
1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

Annex 2: DCS

DCS标准组数													
1	D023N	16	D074N	31	D165N	46	D261N	61	D356N	76	D462N	91	D627N
2	D025N	17	D114N	32	D172N	47	D263N	62	D364N	77	D464N	92	D631N
3	D026N	18	D115N	33	D174N	48	D265N	63	D365N	78	D465N	93	D632N
4	D031N	19	D116N	34	D205N	49	D266N	64	D371N	79	D466N	94	D645N
5	D032N	20	D122N	35	D212N	50	D271N	65	D411N	80	D503N	95	D654N
6	D036N	21	D125N	36	D223N	51	D274N	66	D412N	81	D506N	96	D662N
7	D043N	22	D131N	37	D225N	52	D306N	67	D413N	82	D516N	97	D664N
8	D047N	23	D132N	38	D226N	53	D311N	68	D423N	83	D523N	98	D703N
9	D051N	24	D134N	39	D243N	54	D315N	69	D431N	84	D526N	99	D712N
10	D053N	25	D143N	40	D244N	55	D325N	70	D432N	85	D532N	100	D723N
11	D054N	26	D145N	41	D245N	56	D331N	71	D445N	86	D546N	101	D731N
12	D065N	27	D152N	42	D246N	57	D332N	72	D446N	87	D565N	102	D732N
13	D071N	28	D155N	43	D251N	58	D343N	73	D452N	88	D606N	103	D734N
14	D072N	29	D156N	44	D252N	59	D346N	74	D454N	89	D612N	104	D743N
15	D073N	30	D162N	45	D255N	60	D351N	75	D455N	90	D624N	105	D754N

Specifications

The specifications are subject to changes with the technical development without notice.

Basic Specifications		
Transmitting frequency range	VHF model	136.000MHz – 174.000MHz
	UHF model	400.000MHz – 470.000MHz
Receiving frequency range	VHF model	136.000MHz – 174.000MHz
	UHF model	400.000MHz – 470.000MHz
System	F3E (FM)	
Antenna impedance	50Ω	
Frequency stability	±2.5ppm @ -10℃ ~+60℃	
Working environment temperature	-20℃ ~+60℃ (-4° F~+140° F)	
Input voltage	DC 13.8V （+7%~-15%）,with the negative pole grounded	
Working current	Receiving	0.5A (in squelch)
	Transmitting	8.5A
Size	160 X 43 X 137mm (Width * Height * Depth，excluding the projected part)	
Weight	About 1.2 kg	

Transmitting part		Receiving part	
Output power	High power：VHF 50W/UHF 40W	Medium frequency	49.95MHz/450KHz
	Low power：about 20W	Circuit type	Dual-conversion super heterodyne type
Modulation type	Variable inductance	Sensitivity	≤0.2uV (12dB SINAD)
Maximum offset	±5KHz	Squelch sensitivity	≤0.16uV
Clutter radiation	≤-60dB	Selectivity	12kHz/30kHz（-6dB/-60dB）
MIC impedance	2KΩ	Max. audio output	2W @ 8Ω 5%distortion

Declaration

This manual strives to ensure the correctness and integrity of the contents during its compilation. The company shall not be held responsible for any possible omission or error of the texts. The company reserves the right to make changes with regards to the design and specifications without notice.